

203

**WHAT IS CLAIMED IS:**

1. A hand-held vacuum cleaner comprising:
  - a vacuum cleaner body having a handle, and housing an electric powered blower powered by a battery with a switch disposed between 5 the battery and the blower;
  - an intake portion releasably connected to the vacuum cleaner body such that the intake stage forms an airtight seal with the vacuum body;
  - the vacuum cleaner having an intake opening, an exhaust portion, and 10
  - a filtration system disposed therebetween to filter contaminated air drawn through the intake opening, the filtration system including a passive stage to filter out airborne particles above a predetermined size, and an active stage including at least one agent effective to kill 15 ambient biological contaminants.
2. A vacuum cleaner in accordance with claim 1 wherein the active stage additionally comprises a UV light source which emits UV light at a frequency and intensity effective to kill biological contaminants contained in the contaminated air.
- 20 3. A hand-held vacuum cleaner in accordance with claim 1, wherein the agent in the active stage is clorohexdine, ethanol, lysostaphin, benzoic acid analog, lysine enzyme and metal salt, bacitracin, methicillin, cephalosporin, polymyxin, cefaclor, Cefadroxil, cefamandole nafate,

cefazolin, cefixime, cefinetazole, cefonioid, cefoperazone, ceforanide, cefotanme, cefotaxime, cefotetan, cefoxitin, cefpodoxime proxetil, ceftaxidime, ceftizoxime, ceftriaxone, cefriaxone moxalactam, cefuroxime, cephalexin, cephalosporin C, cephalosporin C sodium salt, 5 cephalothin, cephalothin sodium salt, cephapirin, cephradine, cefuroximeaxetil, dihydratecephalothin, moxalactam, loracarbef mafate.

4. A hand-held vacuum cleaner in accordance with claim 1, wherein the agent in the active stage is lysine enzyme, and additionally comprises a chelating agent in an amount effective to enhance the effect of the lysine enzyme. 10

5. A vacuum cleaner in accordance with claim 1, wherein the active stage additionally comprises one or more metallic agents effective to kill ambient biological contaminants.

15 6. A vacuum cleaner in accordance with claim 5 wherein the metallic agent is silver, zinc, titanium, and copper mesh.

7. A vacuum cleaner in accordance with claim 1, wherein the active stage additionally comprises an IR light source electric or magnetic field generator.

20 8. A vacuum cleaner in accordance with claim 2, wherein the active stage additionally comprises an electric or magnetic field generator to separate airborne particles from contaminated air.

9. A vacuum cleaner in accordance with claim 2, wherein the electric or magnetic field generator includes microfilaments, micro electrical plates or magnetic coils.

10. A vacuum cleaner in accordance with claim 2, wherein the active 5 ingredient may be in the form of a particulate, a tablet, a tape, a mesh, a solid containing the active ingredient, or a fabric containing the active ingredient.

11. A filtration unit comprising:  
10 an active stage and a passive stage, the passive stage for filtering out particles above a predetermined size, active stage containing at least one agent to kill ambient bacteria and viruses;  
an intake port permitting contaminated air to enter into the filtration unit; and  
15 an exhalation port through which decontaminated air may be expelled.

12. A filtration unit in accordance with claim 11, additionally comprising adsorbent media for removing toxic or harmful substances and fluids from air which enters the filtration unit.

20 13. A filtration unit in accordance with claim 11, wherein the active stage additionally comprises a UV light source effective to destroy bacteria and viruses.

14. A filtration unit in accordance with claim 1, wherein the agent in the active stage is chlorohexidine, ethanol, lysostaphin, benzoic acid analog thereof, lysine enzyme, bacitracin, methicillin, cephalosporin, polymyxin, cefaclor, Cefadroxil, cefamandole nafate, cefazolin, cefixime, cefinetazole, cefoniod, cefoperazone, ceforanide, cefotanme, cefotaxime, cefotetan, cefoxitin, cefpodoxime proxetil, ceftaxidime, ceftizoxime, ceftriaxone, cefriaxone moxalactam, cefuroxime, cephalexin, cephalosporin C, cephalosporin C sodium salt, cephalothin, cephalothin sodium salt, cephapirin, cephadrine, cefuroximeaxetil, dihydratecephalothin, moxalactam, or loracarbef mafate .

5

10

15. A filtration unit in accordance with claim 14, wherein the agent in the active stage is lysine enzyme, and additionally comprises a chelating agent in an amount effective to enhance the effect of the lysine enzyme.

15 16. A filtration unit in accordance with claim 14, wherein the active stage additionally comprises one or more metallic agents effective to kill bacteria and viruses.

17. A filtration unit in accordance with claim 16, wherein the metallic agent is silver, zinc, titanium, copper, or iron oxide, in the form of a mesh.

20 18. A filtration unit in accordance with claim 11, wherein the active stage additionally comprises an IR light source electric or magnetic field generator.

19. A filtration unit in accordance with claim 13, wherein the active stage additionally comprises an electric or magnetic field generator to separate airborne particles from contaminated air.

20. A filtration unit in accordance with claim 13, wherein the electric or magnetic field generator includes microfilaments, micro electrical plates or magnetic coils.

21. A filtration unit in accordance with claim 13, wherein the active ingredient may be in the form of a particulate, a tablet, a tape, a mesh, a solid containing the active ingredient, or a fabric containing the active ingredient.